Richard Kha

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in Richard Kha | ⊙ kRichard32

Toronto, Ontario, Canada

EDUCATION

- **University of Toronto** *September 2021 - August 2025*

  B.Sc. in Computer Science (Honours), focus in Artificial Intelligence Toronto, Canada
  ◦ GPA: 3.95/4.00
  ◦ Relevant coursework: Data Structures & Analysis, Algorithm design & Analysis, Operating Systems, Introduction to Databases, Introduction to Machine Learning, Introduction to Image Understanding, Knowledge Representation & Reasoning, Neural Networks & Deep Learning, Capstone Design Project

RESEARCH EXPERIENCE

- **Optimizing remote JIT compilation for the JVM** *May 2024 - August 2024*

  Undergraduate researcher
  ◦ Developed benchmarking tools to measure the speed of the JITServer
  ◦ Implemented scheduling algorithms in order to improve the performance of the JITServer
  ◦ Created a scheduling algorithm which reduces client runtime by up to 9% in high load senarios
  ◦ Co-wrote the **paper** on our findings and performed an oral presentation at HotInfra '24
  ◦ Done in collaboration with IBM CAS

- **Automating Data Analysis for Enhancing ASD Therapy Sessions** *September 2024 - December 2024*

  Undergraduate researcher
  ◦ Implemented a diarization model from a recent paper in order to improve diarization accuracy
  ◦ Conducted tests on diarization models in order to determine change in diarization quality
  ◦ Created an improved version of the diarization model with increased accuracy in the child-adult speech scenario
  ◦ Implemented an algorithm to create transcriptions with speaker labels more accurately given imperfect diarization and transcription
  ◦ Wrote a brief **report** on our findings

PUBLICATIONS

[1]   R. Kha, N. Sreekumar, A. Khrabrov, E. de Lara, A. Brown, M. Gabel, M. Pirvu. (2024). **Towards Optimal Remote JIT Compilation Scheduling for the JVM**. 2nd Workshop on Hot Topics in System Infrastructure (HotInfra 2024) held in conjunction with SOSP 2024. November 2024.

PROJECTS

- **Koko: [A social app for seniors]** *July 2025 - Present*

  Tools: [Java spring boot, React native, Firebase, WebRTC, Google Oauth] [https://kokosocial.ca/]
  ◦ Developed an android app to support social communication within older adult communities with a strong focus on accessibility
  ◦ Full stack development; implemented both the front end mobile app and the java resource server for the app
  ◦ Created messaging, video calling services, user creation services, and matchmaking services
  ◦ Implemented a voice navigation feature for ease of use within the app

- **Bumblebench for JITserver benchmarking: [Tools for JITServer benchmarking]** *May 2024 - September 2024*

  Tools: [Python, Java, Docker, JSON] [⊙]
  ◦ Developed scripts in order to run benchmarks on a JITServer (disaggregated JIT compiler) under high load
  ◦ Used Docker to containerize and limit the JITServer
  ◦ Used JSON files to create configurations for the JITServer
  ◦ Developed scripts in order to produce graphs to analyze performance of the JITServer

- **Capital City: [A monopoly clone]** *October 2022 - December 2022, July 2023 - October 2023*

  Tools: [Java, Java Swing, Gradle] [⊙]
  ◦ Developed a clone of monopoly

- Implemented graphics, sound, game play, etc.
- Implemented multiplayer via sockets and a server
- Implemented concurrency mechanisms
- Implemented persistance mechanisms

- **Crazy Minigames: [A rhythm game and fighting game application]**   *March 2021 - July 2021, May 2023 - June 2023*
Tools: [Java, JavaFX]   [○]
  - Developed a fighting game and rhythm game in a single application
  - Implemented graphics, sound, game play, etc.

- **Custom Tetris: [A modern tetris clone]**   *January 2020 - February 2020, February 2024 - February 2024*
Tools: [Java, JavaFX]   [○]
  - Created a clone of Tetris which implements modern Tetris gameplay features
  - Implemented graphics, sound, game play, etc.

Volunteer Experience

- **Coding/Math Tutor**   *August 2021 - Present*
YDC - Youth Dream Canada   [⊕]
  - Mentored students in a 1 on 1 setting in computer science and math
  - Developed skills in teaching others more effectively and clearly

- **Rcognized Study Group Leader**   *September 2022 - December 2022*
University of Toronto
  - Set up meetings and coordinated a study group for MAT237 (Multivariable Calculus with Proofs)
  - Developed stronger presentation and communication skills

Honors and Awards

- **Undergraduate Student Research Award (USRA)**   *May 2024 - September 2024*
Natural Sciences and Engineering Research Council of Canada (NSERC)   [⊕]
  - Award to support summer research done in 2024

- **The Friends of Victoria University Library Scholarship**   *September 2023*
University of Toronto   [⊕]
  - Awarded to students who achieved overall A standing in second year

- **Margaret Slater Scholarship from the Senate of Victoria University**   *September 2022*
University of Toronto   [⊕]
  - Awarded to students who achieved overall A standing in first year

- **University of Toronto Scholars Award**   *September 2021*
University of Toronto   [⊕]
  - Awarded to outstanding secondary school students on admission